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July 6, 1992

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RE: In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, ET Docket No. 92-9

Dear Ms. Searcy,

Attached are the original and five copies of the Reply Comments of the United Telephone Companies in the proceeding referenced above.

Sincerely,

Jay C. Keithley
Vice President
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Attachments

RDL/mlm

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies	)))))	ET Docket No. 92-9

REPLY COMMENTS OF THE UNITED TELEPHONE COMPANIES

Respectfully submitted,

UNITED TELEPHONE COMPANIES

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July 6, 1992

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SUMMARY

United supports the concept of allocating spectrum in the 2 Ghz range for use by emerging technologies. Current 2 Ghz users should usually be able to relocate to either 6 Ghz radio or other technologies such as fiber optics. Both 6 Ghz and fiber optics are highly reliable when properly engineered for redundancy.

Current 2 Ghz users should have protection from arbitrary spectrum clearing actions. Continued co-primary status should be granted for any current or expansion 2 Ghz system for which a reasonable, technically acceptable replacement system cannot be procured.

Relocation arrangements between current 2 Ghz users and emerging technology providers should not produce windfall profits.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies	)))))	ET Docket No. 92-9

REPLY COMMENTS OF THE UNITED TELEPHONE COMPANIES

The United Telephone companies ("United") hereby submit their reply comments in the above captioned Notice of Proposed Rulemaking.[1] In this reply United will address the comments of other parties dealing with the reliability of fiber and radio systems in the 4-6 Ghz range, the availability of narrowband equipment for use in the 4-6 Ghz range, specific allocation proposals, joint use of spectrum and relocation terms.

I. Reliable Alternatives to 2 Ghz Radio Systems Exist for Use by Current 2 Ghz Users

1. Reliability of any communications system is ensured through redundancy.

Many of the current users of 2 Ghz radio highlight the fact that 2 Ghz radio is capable of traveling greater distances than 6 Ghz radio before it needs retransmission. As a result,

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1. In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, Notice of Proposed Rulemaking, ET Docket No. 92-9, Released February 7, 1992 ("NPRM").

over a given long mileage route, fewer radios are needed to carry the traffic. These parties state that the addition of more radios into the network reduces reliability.[2] United does not dispute this claim.

However, it is common practice for this class of users to mitigate the risk of radio failure by "redundancy through the addition of 'hot standby' radios and backup power supplies."[3] This same redundancy scheme protects against failure in both 2 Ghz and 6 Ghz systems. The added risk of failure through the addition of more radios in 6 Ghz systems is adequately mitigated through the customary practice of installing redundant systems.

2. Fiber system reliability is ensured through ring configuration.

Many of the current utility and pipeline users of 2 Ghz radio questioned the reliability of fiber optic transmission systems as compared to 2 Ghz radio systems.[4] In general, those disparaging the reliability of fiber optics do so on two grounds. First, if the 2 Ghz user places its own fiber, it is susceptible to damage from natural catastrophes and the intervention of man. Second, if fiber is available from communications common car-

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2. See, e.g., National Rural Electric Cooperative Association at 6, Questar Corporation at 5, and Texas Gas Transmission Corporation at 5.

3. Utilities Telecommunications Council at 55.

4. See, e.g., Edison Electric Institute at 14, American Gas Association at 6, and Interstate Natural Gas Association of America at 8-9.

riers, it is unreliable because communications common carriers are unreliable. The comments then suggest that fiber is not an acceptable medium for their control circuits.

The Utility Users Council notes that its members "have reported positively with respect to the resiliency of their fiber optic systems during natural disasters, including hurricanes and earthquakes." However, they also note that a fiber cut "will result in complete loss of service if the system does not have redundancy" through "a looped architecture and geographically alternate routing."[5]

United agrees with the Utility Users Council, that fiber is resilient and provides highly reliable service when engineered to provide redundancy. In fact, fiber systems are probably more reliable, when properly engineered, than many of the existing 2 Ghz systems. This is because the engineering of many 2 Ghz systems includes "hot standby radios" located on the same towers as the active radios. This arrangement lacks the substantial reliability benefits provided by "a looped architecture and geographically alternate routing."

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5. Utility Users Council at 55.

The loss of a microwave tower with "hot standby radios" to mudslides, earthquakes, hurricanes or tornadoes results in a total loss of service. In comparison, the cut of a fiber facility with a loop architecture produces no service disruption.[6]

The comments suggest that communications common carriers do not provide reliable service. In support of this claim reference is made to "congestion" in the network during times of natural or man-made disaster.[7] In addition, the need for "reliability" through private radio systems versus communications common carrier systems is cited as a factor in development of the private radio systems.[8]

These arguments are misplaced today. The reports on which these comments rely date from FCC Docket No. 11866, In the Matter of Allocation of Frequencies in the Bands Above 890 Mcs, 27 FCC 359 (1959). The Utility Telecommunications Council further cites a 1967 report of a Federal Power Commission Advisory Panel urging electric utilities to create communications systems

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6. An example of the reliability of loop architecture occurred recently when the Illinois Bell Chicago fiber ring was severed by workmen during the cleanup from the recent Chicago flood. Service was not disrupted by this major fiber cut because the system was engineered for reliability.

7. Utility Telecommunications Council at 33 and 35.

8. See, e.g., Questar Corporation at 7, Metropolitan Water District of Southern California at 9, and Utilities Telecommunications Council at 33.

that are under their complete control.[9] These reports are over 25 years old and do not reflect the highly reliable nature of the current communication common carrier network. Since the time of the outdated reports, mechanical switching has been replaced by very reliable electronic switching. Copper cable is being replaced with fiber systems. The current common carrier network is more sophisticated and reliable than at any time in its history, and is clearly more reliable than it was in the 1950s.

Additionally, "congestion" is only a problem with switched circuits. Private lines do not suffer from "congestion" or "unavailability" due to the high use of other customers. Customers can avoid this risk of unavailability due to congestion by ordering private circuits provisioned over common carrier facilities. Because these circuits are not switched, an even higher degree of reliability is achieved.

3. 2 Ghz radio facilities will be available for rural utility applications for the foreseeable future.

Many of the utility and pipeline commentors highlighted the fact that communications common carrier fiber facilities may not be readily available in rural areas to serve their communications transmission needs. United agrees with this general assessment. However, alternative radio facilities will be available. Additionally, in these rural areas it is likely that

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9. Utility Telecommunications Council at 34.

sufficient 2 Ghz spectrum will be available to handle the current 2 Ghz radio needs of existing users and emerging technology users.[10]

The development of cellular service is an appropriate analogy to the projected development of emerging technology-based services. Cellular service was initially deployed in major urban areas where population densities were most attractive. High usage of cellular services in these areas is the norm. Rural areas have lagged behind urban areas in deployment of cellular services. The last cellular RSA was just recently activated, nearly 10 years after the introduction of cellular service.

The scarcity of 2 Ghz spectrum is most acute in major urban areas. It is in these areas where personal communications services ("PCS") and other emerging technology-based services will first occur. Major urban areas also have the highest incidence of fiber deployment by communications common carriers, competitive access providers, and other utilities. In these areas where 2 Ghz spectrum is most scarce, fiber is an available alternative.

In more rural areas where electric generating facilities, natural gas fields, and gas pipelines are often found,

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10. See United at 5 and Harris at 5-6.

2 Ghz radio spectrum should not generally become overly congested in the foreseeable future. While fiber may not be readily available in many of these areas, 2 Ghz radio will continue to be available.

In general, where fiber is most needed as a replacement for 2 Ghz radio, it is most available. In other areas, fiber could be constructed or 6 Ghz radio could be used as an alternative.[11]

II. Narrowband 4-6 Ghz Equipment Is Easily Obtained When Demand Materializes

The Public Safety Microwave Committee points out that "narrow bandwidth equipment operating on the 4 Ghz band is not even available at the present time" as an additional reason why current 2 Ghz users should not relocate.[12] No technological reason exists to support any suggestion that this equipment will not be readily available once demand materializes. Manufacture of this equipment will be easily achieved using current technology.

III. Spectrum Assignments for Specific New Technology-Based Services Are Premature

Some comments suggest that the proposed new technology spectrum allocation be assigned to specific services at this time.[13] United believes that specific spectrum assignments within any

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11. See, e.g., US West at 5-9.

12. Public Safety Microwave Committee at 18.

13. See, e.g., International Mobile Machines at 7.

spectrum allocated for emerging technology-based services should be determined at a later date. Until such time as the amount of spectrum available is determined, and the timeframe in which it will be made available is established, allocation to specific services is speculative and premature.

IV. Current 2 Ghz Users Must Have Protection From Arbitrary Spectrum Clearing Actions

The establishment of co-primary status for current 2 Ghz users was championed in many comments.[14] United recognizes the need to provide stability to current 2 Ghz users and proposed limited co-primary status in its Comments.[15] United continues to support co-primary status for any current or expansion 2 Ghz system for which a reasonable, technically acceptable replacement system cannot be procured. Additionally, to the extent that many areas are capable of supporting both current 2 Ghz users and emerging technology users, joint use of spectrum should be encouraged. Current users should not be required to relocate except when two conditions are met. First, 2 Ghz spectrum suitable for use by an emerging technology-based service provider must not be available. Second, suitable relocation alternatives, funded by the party seeking to relocate the current spectrum user, must be available.

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14. See e.g., Organization for the Protection and Advancement of Small Telephone Companies at 5-7, Harris Corporation -- Farinon Division at 5-6, and Telephone and Data Systems, Inc. at 4.

15. United at 4-6.

V. Relocation Arrangements for Current 2 Ghz Users Should Cover All Costs But Not Provide Windfalls

United supported voluntary relocation in its initial comments.[16] Many other parties also support voluntary relocation agreements.[17] One hallmark of these comments is the emphasis they place on limiting windfalls and unreasonable compensation for relocation arrangements. No party should recognize a windfall profit from relocation.

Some parties, such as Edison Electric Institute, worry that not all recurring costs will be covered in relocation arrangements.[18] These increased recurring costs are appropriately considered as relocation arrangements are negotiated.

VI. Conclusion

United continues to support the Commission in its proposed allocation of 2 Ghz spectrum for new services utilizing emerging technology. Many reliable alternatives to 2 Ghz radio, such as private fiber, common carrier fiber, and 6 Ghz radio exist. Pro-

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16. United at 5.

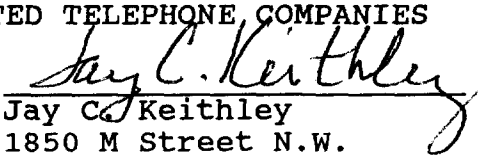
17. See, e.g., Telephone and Data Systems, Inc. at 7-8 TRX transportation Telephone Company at 12-15, and US West at 12-14.

18. Edison Electric Institute at 22.

tection of current 2 Ghz users from forced relocation to technically unacceptable alternatives should be provided. Spectrum sharing, when possible, should be encouraged. Relocation windfall profits should not be allowed.

Respectfully submitted,

UNITED TELEPHONE COMPANIES

By 

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July 6, 1992

CERTIFICATE OF SERVICE

I, Melinda L. Mills, hereby certify that I have on this 6th day of July, 1992, sent via hand delivery or U.S. First Class Mail, postage prepaid, a copy of the foregoing "Reply Comments of the United Telephone Companies" ET Docket No. 92-9, In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, filed this date with the Secretary, Federal Communications Commission, to the persons on the attached service list.

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